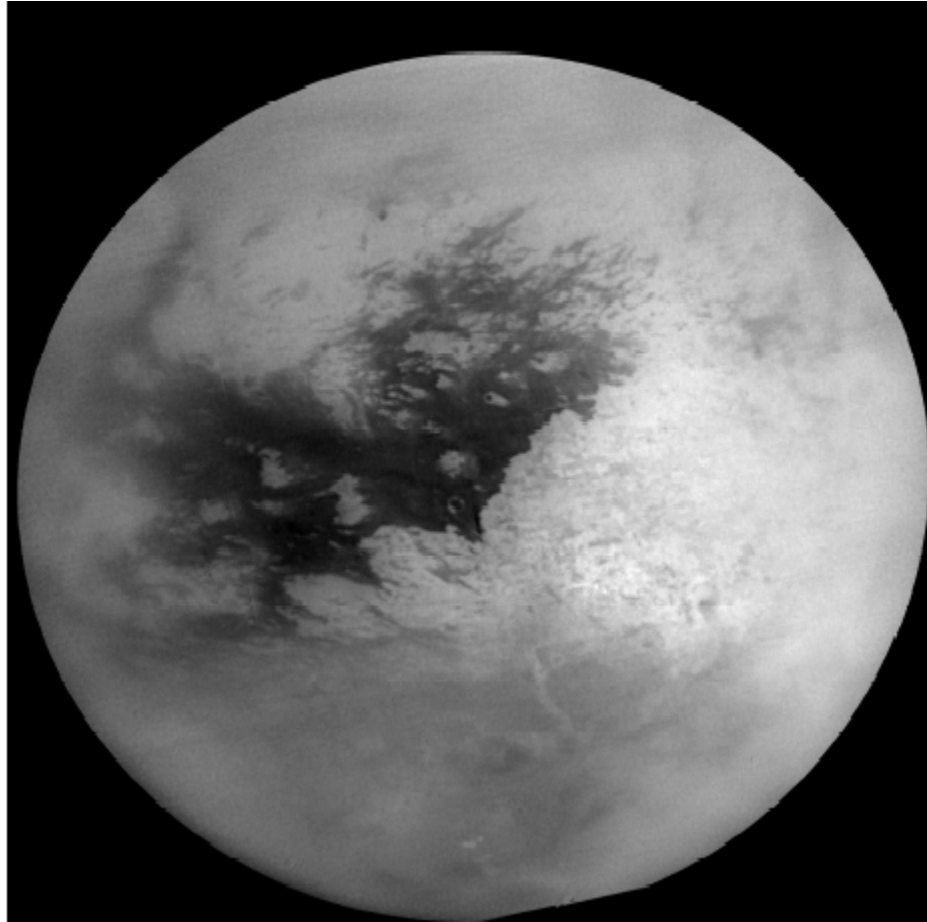


C A S S I N I



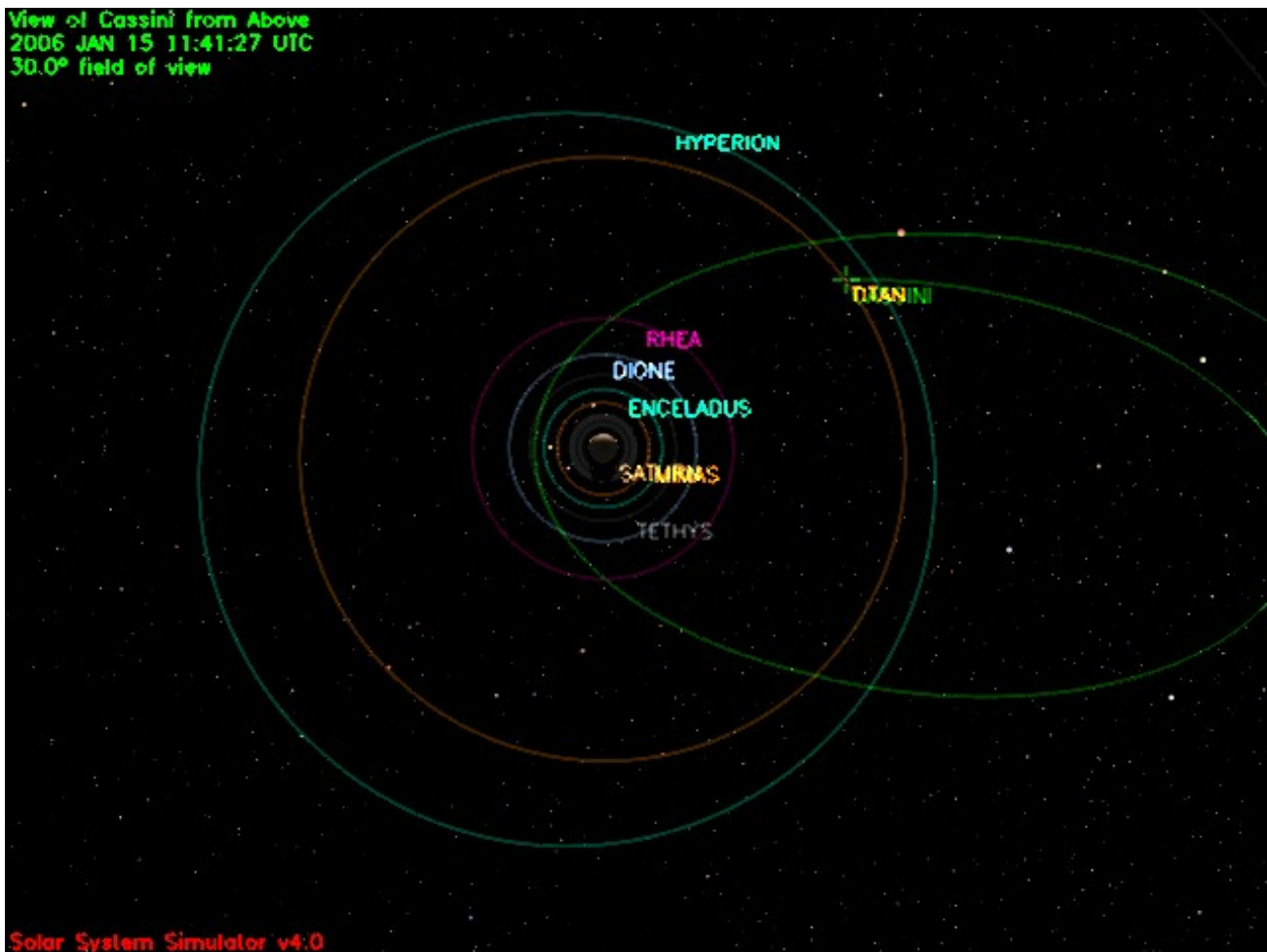
T I T A N 0 2 0 T I (T 1 0)
MISSION DESCRIPTION

January 2006

1.0 OVERVIEW

Only 21 days after T9, Cassini returns to Titan for its eleventh targeted encounter. The closest approach to Titan occurs on Sunday, January 15, at 11:41 spacecraft time (12:49 PM Pacific Time) at an altitude of 2043 km (1270 miles) above the surface and at a speed of 5.8 kilometers per second (12,977 mph). The latitude at closest approach is 0°(equator) and the encounter occurs on orbit number 20.

This encounter is set up with two maneuvers: an apoapsis maneuver scheduled for 2 January 2006, and an approach maneuver, scheduled for 12 January. However, the apoapsis maneuver is so small that it has been cancelled. This inbound encounter occurs about 2 days prior to Saturn closest approach.



1.1 ABOUT TITAN

Titan is one of the primary scientific interests of the Cassini-Huygens mission. Through observations by Earth based telescopes and the Voyager spacecraft, Titan has been revealed to be an intriguing world both similar in nature to Earth and unique among both satellites and terrestrial planets. The largest of Saturn's satellites, Titan is larger than the planets Mercury or Pluto. Titan is the only satellite in the solar system with an appreciable atmosphere. Like Earth's atmosphere, Titan's atmosphere is composed mostly of Nitrogen, yet appears to have few clouds. However, it also contains significant quantities of aerosols and organic compounds (hydrocarbons), including methane and ethane. Although Titan's thick smoggy atmosphere masks its surface, scientists have speculated Titan's surface could contain solid, liquid and muddy material creating features such as lakes, seas, or rivers. Additionally liquid reservoirs may exist beneath the surface forming geysers or volcanoes that feed flowing liquid onto the surface.

Titan's peak surface temperature is about 95 Kelvin, too cold for liquid water, and due to its thick atmosphere, the pressure at the surface is 1.6 times greater than Earth's atmosphere. At this temperature and pressure, chemicals such as methane, ethane, propane, ammonia, water-ice and acetylene may be involved in complex interior-surface-atmosphere chemical cycles resulting in eruptions, condensation and precipitation (or rain). Initial observations obtained by Cassini during the first several passes of Titan provided our first close up views of Titan in wavelengths ranging from visible light to infrared to radar. The Huygens probe successfully returned atmospheric data and images of the surface, providing ground truth for the Cassini Orbiter measurements. The results show a mysterious world even more complex than previously thought. The diversity of surface composition and its connection to Titan's geologic features remains a fundamental question. Huygens' results indicate that methane exists as a liquid just below the surface and may rain from the atmosphere periodically. Clouds in Titan's atmosphere were observed in the southern hemisphere, yet no clear explanation has emerged on what the clouds are composed of, or why more clouds do not exist. Observations of Titan's interaction with Saturn's magnetosphere indicate the presence of complex processes complicated by Titan's occasional emergence out of Saturn's magnetosphere into the solar wind.

1.2 TITAN-10 SCIENCE ACTIVITIES

- **ISS** – will perform two mosaics near Xanadu and the dark region, including the Huygens landing site. The closer mosaic will have pixel scales ~600-350 m.
- **CIRS** –will be observing Titan's limb at +55 latitude. This is expected to be near the transition to a possible winter polar vortex region over the north pole, where strong zonal winds in the stratosphere inhibit mixing of air with lower latitudes. CIRS will also perform hemispheric temperature mapping in the stratosphere.

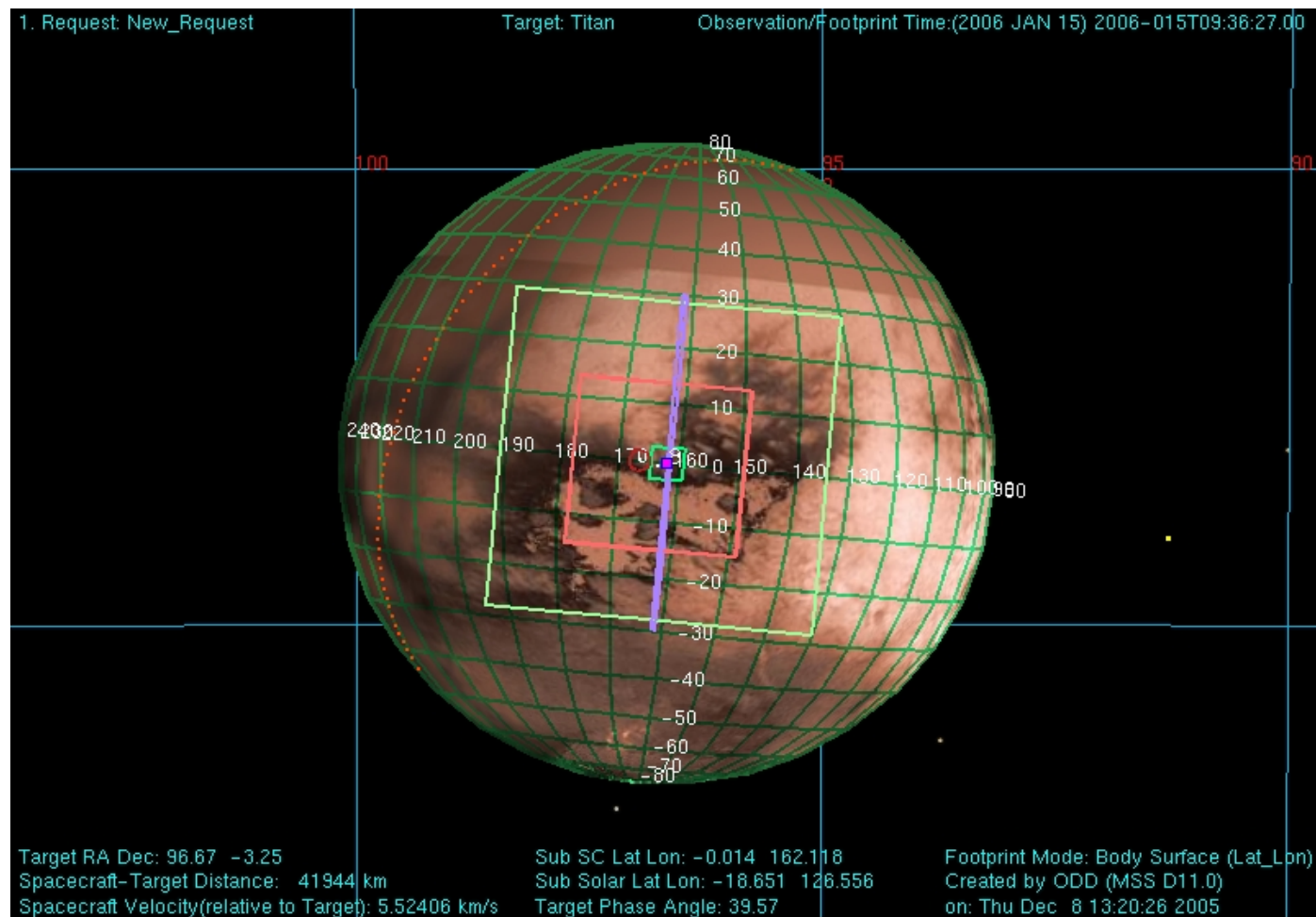
- **UVIS** – will perform a global spectral map to study aerosol scattering and hydrocarbon absorption and distribution. This will also be UVIS' first solar occultation. With the solar occultation UVIS can observe the extreme ultraviolet (EUV) spectrum below 110 nm and can sample opacity from nitrogen and methane and possibly some other hydrocarbons.
- **VIMS** – will obtain new high resolution images that will help understand Titan's geology and the fate of CH₄.
- **MAG** - will take advantage of this encounter being upstream of the Titan/magnetospheric interaction. The spacecraft will fly through Titan's middle ionosphere. Together with the T 8 and T6 flybys, T10 will allow MAG to reconstruct the upstream equatorial ionospheric pile-up region.
- **MIMI** - will observe details of the Titan/magnetospheric interaction by observing within a one-hour period of closest approach. MIMI will also observe Titan's exosphere/magnetospheric interaction by imaging energetic neutral atoms (ENA) with the Ion and Neutral Camera (INCA).
- **INMS** – will obtain data regarding Titan's atmospheric and ionospheric composition and thermal structure. INMS will also observe the magnetospheric/ionospheric interaction.
- **RPWS** – will study the interaction of the magnetosphere with Titan at intermediate distances for evidence of ion pickup, radio emissions, density profiles, and the general wave environment.

1.3 SAMPLE SNAPSHOTS

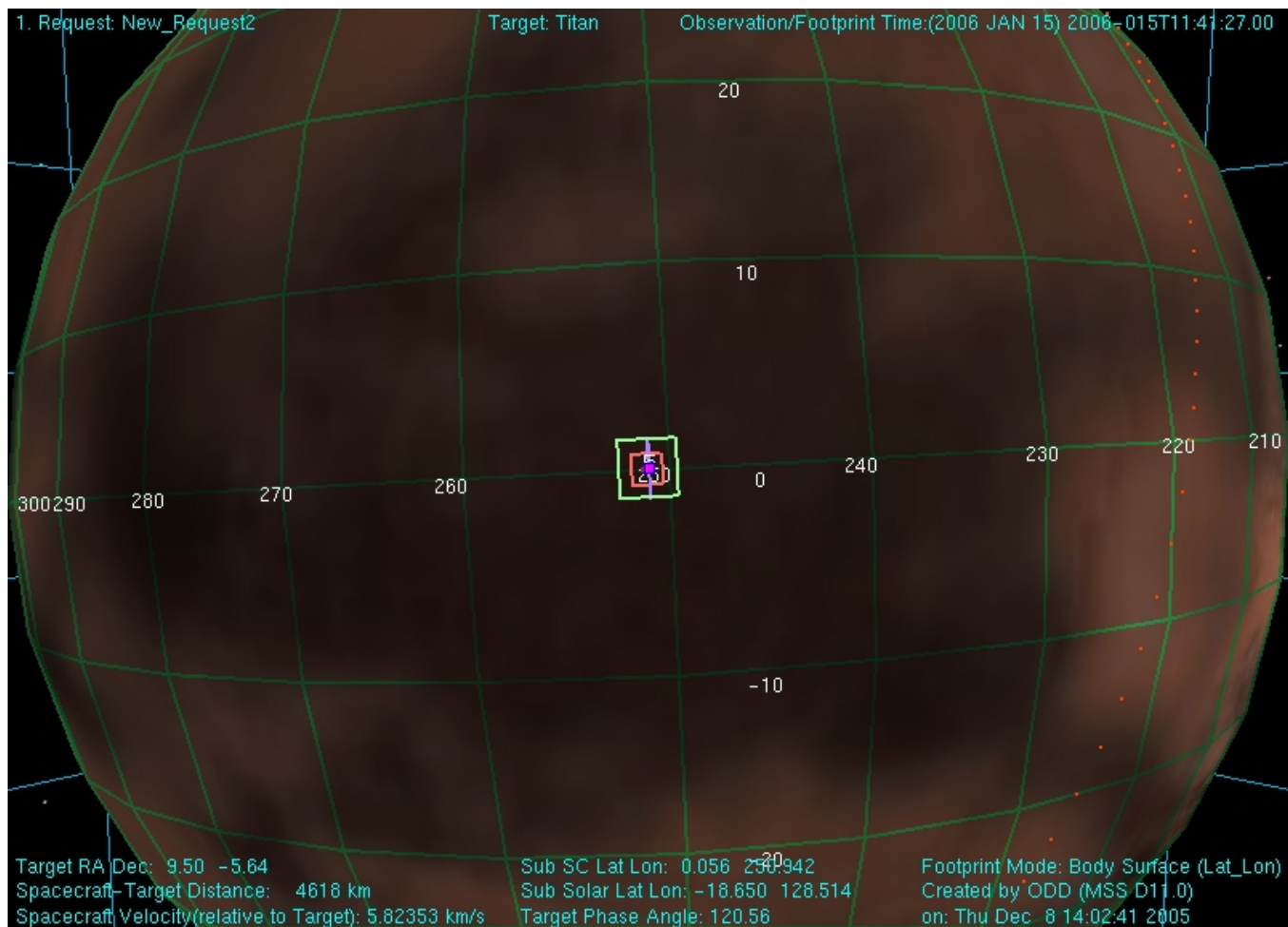
Three views of Titan from Cassini before, during, and after closest approach to Titan are shown below. The views are oriented such that the direction towards the top of the page is aligned with the Titan North Pole. Sample remote sensing instrument fields of view are drawn assuming that Cassini is pointed towards the center of Titan. The size of these fields of view vary as a function of the distance between Cassini and Titan. A key for use in identifying these instruments fields of view in the figures is listed below.

Key to Instrument Fields of View in Figures

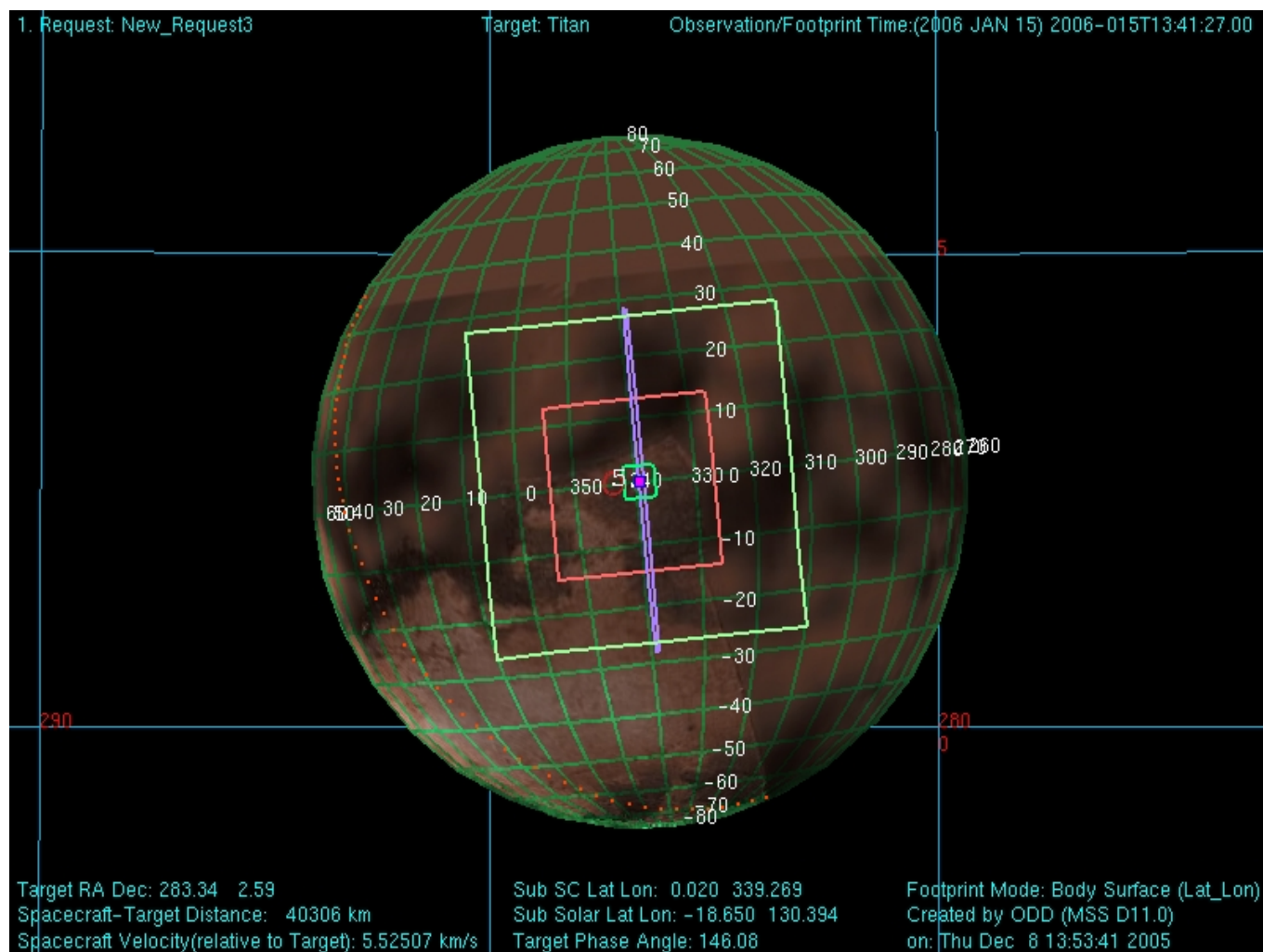
Instrument Field of View	Depiction in Figure
ISS WAC (imaging wide angle camera)	Largest square
VIMS (visual and infrared mapping spectrometer)	Next largest pink square
ISS NAC (imaging narrow angle camera)	Smallest green square
CIRS (composite infrared spectrometer) – Focal Plane 1	Small red circle near ISS_NAC FOV
UVIS (ultraviolet imaging spectrometer)	Vertical purple rectangle centered within largest square



View of Titan from Cassini 2 hours before closest approach (above)



View of Titan from Cassini at closest approach (above)



View of Titan from Cassini 2 hours after closest approach

Timeline and Geometry Table below

Cassini Titan-10 Timeline - January 2006				Colors: yellow = maneuvers; blue = geometry, pink = T10-related; green = data playbacks	
Orbiter UTC	Ground UTC	Pacific Time	Time wrt T10	Activity	Description
351T14:21:00	Dec 17 15:29	Sat Dec 17 08:29 AM	T10-28d21h	Start of Sequence S17	Start of Sequence which contains Titan-10.
012T03:23:00	Jan 12 04:31	Wed Jan 11 09:31 PM	T10-03d08h	OTM #49 Prime	Titan-10 minus 3 day targeting maneuver
013T03:23:00	Jan 13 04:31	Thu Jan 12 09:31 PM	T10-02d08h	OTM #49 Backup	
014T13:38:00	Jan 14 14:46	Sat Jan 14 07:46 AM	T10-22h03m	Start of the TOST Segment	
014T13:38:00	Jan 14 14:46	Sat Jan 14 07:46 AM	T10-22h03m	Turn cameras to Titan	
014T14:08:00	Jan 14 15:16	Sat Jan 14 08:16 AM	T10-21h33m	Deadtime	Used to accommodate changes in flyby time
014T14:23:00	Jan 14 15:31	Sat Jan 14 08:31 AM	T10-21h18m	Infrared (IR) observations	Temperature mapping and composition determination
015T01:41:00	Jan 15 02:49	Sat Jan 14 07:49 PM	T10-10h00m	Narrow Angle Camera (NAC) observations	Monitor for surface and atmospheric changes
015T02:41:00	Jan 15 03:49	Sat Jan 14 08:49 PM	T10-09h00m	IR limb observations	Obtain information on trace constituents in stratosphere
015T06:41:00	Jan 15 07:49	Sun Jan 15 12:49 AM	T10-05h00m	NAC observations	Low-phase angle global map
015T11:01:00	Jan 15 12:09	Sun Jan 15 05:09 AM	T10-00h40m	Ultraviolet Imaging Spectrometer (UVIS) solar occultation observation	Target the Sun as it passes down through Titan's atmosphere and then back out again
015T11:41:27	Jan 15 12:49	Sun Jan 15 05:49 AM	T10+00h00m	Titan-10 Flyby Closest Approach Time	Altitude = 2043 km (1270 miles), speed = 6.0 km/s (13,400 mph); 120 deg phase at closest approach
015T12:41:00	Jan 15 13:49	Sun Jan 15 06:49 AM	T10+01h00m	Far IR limb observations	Vehicle sounding of stratospheric compounds in stratosphere (including H ₂ O)
015T13:41:00	Jan 15 14:49	Sun Jan 15 07:49 AM	T10+02h00m	Visible and IR Mapping Spectrometer (VIMS)	Lightning search
015T14:41:00	Jan 15 15:49	Sun Jan 15 08:49 AM	T10+03h00m	Ultraviolet imaging	Slow scan to form spectral images
015T19:41:00	Jan 15 20:49	Sun Jan 15 01:49 PM	T10+08h00m	NAC nightside imaging	Search for and monitor lightning/aurora
016T02:24:00	Jan 16 03:32	Sun Jan 15 08:32 PM	T10+14h43m	Deadtime	Used to accommodate changes in flyby time
016T02:35:00	Jan 16 03:43	Sun Jan 15 08:43 PM	T10+14h54m	Turn to Earth-Line	
016T03:05:00	Jan 16 04:13	Sun Jan 15 09:13 PM	T10+15h24m	Begin Playback of T10 Data	Goldstone 70M
016T12:05:00	Jan 16 13:13	Mon Jan 16 06:13 AM	T10+01d00h	End Playback of T10 Data	
017T06:58:00	Jan 17 08:06	Tue Jan 17 01:06 AM	T10+01d19h	Saturn periapsis	

1.4 FLYBY GEOMETRY

Event Name at Event Time Only	SCET Date (YYYY-DOYTHH:MM:SS.FF) UTC	SCET Date (MM/DD/YYYY HH:MM:SS) UTC	SCET Date (MM/DD/YYYY HH:MM:SS) ET	Hours wrt Event Epoch	Minutes wrt Event Epoch	S/C Range (km)	S/C Altitude wrt Tri-axial Ellipsoid (km)	S/C North Latitude (deg)	S/C West Longitude SMEQP M Date (deg)	S/C Inertial Velocity (km/s)	S/C Radial Inertial Velocity (km/s)	S/C Tangential Inertial Velocity (km/s)	Central Body Angular Diameter (mrad)	Phase = Sun-Central Body-S/C Angle (deg)	Sun-S/C Central Body Angle (deg)	S/C Local True Solar Time wrt Central Body (hh:mm)	Sub-solar Latitude wrt Central Body (deg)
	2006-014T11:41:26.78	14-Jan-06	11:42:32	-24	-1440	487,054.7	484,479.7	0.0	136.9	5.848	-5.843	0.235	10.6	35.7	144.3	09.56	-18.7
	2006-014T15:41:26.78	14-Jan-06	15:42:32	-20	-1200	403,503.6	400,928.6	0.0	140.4	5.763	-5.761	0.139	12.8	35.4	144.6	09.57	-18.7
	2006-014T17:41:26.78	14-Jan-06	17:42:32	-18	-1080	362,168.4	359,593.4	0.0	142.1	5.722	-5.721	0.093	14.2	35.3	144.7	09.57	-18.7
	2006-014T19:41:26.78	14-Jan-06	19:42:32	-16	-960	321,117.9	318,542.9	0.0	143.9	5.682	-5.682	0.050	16.0	35.2	144.8	09.58	-18.7
	2006-014T21:41:26.78	14-Jan-06	21:42:32	-14	-840	280,341.5	277,766.5	0.0	145.8	5.645	-5.645	0.007	18.4	35.2	144.8	09.58	-18.7
	2006-014T23:41:26.78	14-Jan-06	23:42:32	-12	-720	239,824.7	237,249.7	0.0	147.7	5.610	-5.610	0.037	21.5	35.2	144.8	09.58	-18.7
	2006-015T01:41:26.78	15-Jan-06	01:42:32	-10	-600	199,548.3	196,973.3	0.0	149.7	5.579	-5.578	0.083	25.8	35.3	144.7	09.57	-18.7
	2006-015T03:41:26.78	15-Jan-06	03:42:32	-8	-480	159,488.1	156,913.1	0.0	151.8	5.552	-5.550	0.136	32.3	35.5	144.5	09.56	-18.7
	2006-015T05:41:26.78	15-Jan-06	05:42:32	-6	-360	119,613.8	117,038.8	0.0	154.2	5.531	-5.527	0.207	43.1	35.9	144.1	09.54	-18.7
	2006-015T06:41:26.78	15-Jan-06	06:42:32	-5	-300	99,735.4	97,160.4	0.0	155.6	5.523	-5.517	0.257	51.6	36.3	143.7	09.53	-18.7
	2006-015T07:41:26.78	15-Jan-06	07:42:32	-4	-240	79,890.1	77,315.1	0.0	157.2	5.518	-5.508	0.329	64.5	36.9	143.1	09.50	-18.7
	2006-015T08:41:26.78	15-Jan-06	08:42:32	-3	-180	60,075.4	57,500.4	0.0	159.2	5.518	-5.500	0.444	85.8	37.8	142.2	09.45	-18.7
	2006-015T09:41:26.78	15-Jan-06	09:42:32	-2	-120	40,298.9	37,723.9	0.0	162.5	5.525	-5.485	0.666	127.9	39.8	140.2	09.36	-18.7
	2006-015T10:41:26.78	15-Jan-06	10:42:32	-1	-60	20,646.0	18,071.0	0.0	170.1	5.560	-5.405	1.303	250.1	45.7	134.3	09.09	-18.7
	2006-015T11:11:26.78	15-Jan-06	11:12:32	-1	-30	11,116.7	8,541.7	0.0	-177.3	5.625	-5.079	2.419	467.5	56.8	123.2	08.21	-18.7
	2006-015T11:26:26.78	15-Jan-06	11:27:32	0	-15	6,859.1	4,284.1	0.0	-158.6	5.714	-4.156	3.921	769.7	74.1	105.9	07.07	-18.6
	2006-015T11:36:26.78	15-Jan-06	11:37:32	0	-5	4,917.8	2,342.8	0.0	-129.9	5.803	-1.941	5.469	1102.2	101.0	79.0	05.13	-18.6
T10 20T1	2006-015T11:41:26.78	15-Jan-06	11:42:32	0	0	4,618.2	2,043.2	0.1	-109.1	5.824	0.007	5.824	1182.9	120.5	59.5	03.50	-18.6
	2006-015T11:46:26.78	15-Jan-06	11:47:32	0	5	4,921.5	2,346.5	0.1	-88.2	5.803	1.952	5.465	1101.2	139.4	40.6	02.27	-18.6
	2006-015T11:56:26.78	15-Jan-06	11:57:32	0	15	6,867.1	4,292.1	0.0	-59.6	5.713	4.160	3.916	768.7	159.7	20.3	00.33	-18.6
	2006-015T12:11:26.78	15-Jan-06	12:12:32	1	30	11,126.1	8,551.1	0.0	-41.0	5.625	5.079	2.417	467.1	158.9	21.1	23.19	-18.6
	2006-015T12:41:26.78	15-Jan-06	12:42:32	1	60	20,655.0	18,080.0	0.0	-28.4	5.559	5.405	1.303	250.0	151.3	28.7	22.31	-18.6
	2006-015T13:41:26.78	15-Jan-06	13:42:32	2	120	40,305.2	37,730.2	0.0	-20.7	5.525	5.484	0.670	127.9	146.1	33.9	22.04	-18.6
	2006-015T14:41:26.78	15-Jan-06	14:42:32	3	180	60,081.2	57,506.2	0.0	-17.5	5.519	5.500	0.453	85.7	144.2	35.8	21.55	-18.6
	2006-015T15:41:26.78	15-Jan-06	15:42:32	4	240	79,902.5	77,327.5	0.0	-15.4	5.523	5.512	0.345	64.5	143.2	36.8	21.50	-18.6
	2006-015T16:41:26.78	15-Jan-06	16:42:32	5	300	99,768.1	97,193.1	0.0	-13.7	5.532	5.525	0.282	51.6	142.6	37.4	21.47	-18.6
	2006-015T17:41:26.78	15-Jan-06	17:42:32	6	360	119,688.6	117,113.6	0.0	-12.3	5.548	5.542	0.242	43.0	142.1	37.9	21.45	-18.6
	2006-015T19:41:26.78	15-Jan-06	19:42:32	8	480	159,751.7	157,176.7	0.0	-9.7	5.593	5.589	0.196	32.2	141.6	38.4	21.43	-18.6
	2006-015T21:41:26.78	15-Jan-06	21:42:32	10	600	200,222.9	197,647.9	0.0	-7.4	5.659	5.656	0.173	25.7	141.2	38.8	21.41	-18.6
	2006-015T23:41:26.78	15-Jan-06	23:42:32	12	720	241,255.7	238,680.7	0.0	-5.3	5.748	5.746	0.161	21.3	141.0	39.0	21.40	-18.6
	2006-016T01:41:26.78	16-Jan-06	01:42:32	14	840	283,028.4	280,453.4	0.0	-3.1	5.864	5.862	0.154	18.2	140.7	39.3	21.39	-18.6
	2006-016T03:41:26.78	16-Jan-06	03:42:32	16	960	325,748.1	323,173.1	0.0	-1.0	6.012	6.010	0.146	15.8	140.6	39.4	21.38	-18.6
	2006-016T05:41:26.78	16-Jan-06	05:42:32	18	1080	369,656.6	367,081.6	0.0	1.0	6.195	6.194	0.133	13.9	140.4	39.6	21.37	-18.6
	2006-016T07:41:26.78	16-Jan-06	07:42:32	20	1200	415,036.8	412,461.8	0.0	3.0	6.421	6.420	0.109	12.4	140.3	39.7	21.37	-18.6
	2006-016T11:41:26.78	16-Jan-06	11:42:32	24	1440	511,596.6	509,021.6	0.0	6.9	7.030	7.030	0.002	10.1	140.2	39.8	21.36	-18.6

1.5 T10 DATA PLAYBACK TIMELINE

For each science observation, the table below contains a time-ordered listing of the data playback times. One-way light time at the time of the encounter is 1 hour and 8 minutes.

020TI (T10) Playback Timeline

Created Dec. 21, 2005

Event or Observation	Observation Type (APGEN)	Observation Record Start Time (yyyy-dddThh:mm:ss) (SCET)	Record Start Time - Reference Epoch (ddThh:mm)	Start Playback (Ground UTC)		Start Playback (Pacific Time)	
				Best Estimate	Latest Estimate	Best Estimate	Latest Estimate
MAG_019CO_MAGBOUND004_MAPS	MAG_1976	2005-351T14:21:00	-28T21:19	18-Dec Sun 06:30 AM	Sun 06:30 AM	17-Dec Sat 10:30 PM	Sat 10:30 PM
CAPS_020SA_SURVEY002_RIDER	CAPS_16000	2006-014T13:38:00	-00T22:02	16-Jan Mon 04:17 AM	Mon 04:17 AM	15-Jan Sun 08:17 PM	Sun 08:17 PM
INMS_020SA_SURVEY002_RIDER	INMS_1498	2006-014T13:38:00	-00T22:02	16-Jan Mon 04:17 AM	Mon 04:17 AM	15-Jan Sun 08:17 PM	Sun 08:17 PM
MAG_020OT_SURVEY003_RIDER	MAG_1976	2006-014T13:38:00	-00T22:02	16-Jan Mon 04:17 AM	Mon 04:17 AM	15-Jan Sun 08:17 PM	Sun 08:17 PM
MIMI_020CO_SURVEY002_RIDER	MIMI_8000	2006-014T13:38:00	-00T22:02	16-Jan Mon 04:17 AM	Mon 04:17 AM	15-Jan Sun 08:17 PM	Sun 08:17 PM
RPWS_020SA_OUTSURVEY013_PRIME	RPWS_30464	2006-014T13:38:00	-00T22:02	16-Jan Mon 04:17 AM	Mon 04:17 AM	15-Jan Sun 08:17 PM	Sun 08:17 PM
CIRS_020TI_MIDIRTMAP010_PRIME	CIRS_4000	2006-014T14:23:27	-00T21:17	16-Jan Mon 04:19 AM	Mon 04:19 AM	15-Jan Sun 08:19 PM	Sun 08:19 PM
CIRS_020TI_MIDIRTMAP010_SI	ISS_SUPPORT_IMAGING	2006-014T14:23:27	-00T21:17	16-Jan Mon 04:19 AM	Mon 04:19 AM	15-Jan Sun 08:19 PM	Sun 08:19 PM
ISS_020TI_MIDIRTMAP010_CIRS	ISS_Phot_1_by_1	2006-014T14:23:27	-00T21:17	16-Jan Mon 04:19 AM	Mon 04:19 AM	15-Jan Sun 08:19 PM	Sun 08:19 PM
UVIS_020TI_MIDIRTMAP010_CIRS	UVIS_5032	2006-014T14:23:27	-00T21:17	16-Jan Mon 04:19 AM	Mon 04:19 AM	15-Jan Sun 08:19 PM	Sun 08:19 PM
VIMS_020TI_NADIRTEMP001_CIRS	VIMS_18432	2006-014T14:23:27	-00T21:17	16-Jan Mon 04:19 AM	Mon 04:19 AM	15-Jan Sun 08:19 PM	Sun 08:19 PM
CDA_020HY_2400HYORX016_RIDER	CDA_524	2006-014T20:00:00	-00T15:40	16-Jan Mon 04:43 AM	Mon 04:53 AM	15-Jan Sun 08:43 PM	Sun 08:53 PM
CDA_020DR_1700DUST111_RIDER	CDA_524	2006-014T22:01:00	-00T13:40	16-Jan Mon 04:52 AM	Mon 05:03 AM	15-Jan Sun 08:52 PM	Sun 09:03 PM
CIRS_020TI_FIRNADCMPO02_PRIME	CIRS_4000	2006-014T23:41:27	-00T11:59	16-Jan Mon 04:58 AM	Mon 05:12 AM	15-Jan Sun 08:58 PM	Sun 09:12 PM
CIRS_020TI_FIRNADCMPO02_SI	ISS_SUPPORT_IMAGING	2006-014T23:41:27	-00T11:59	16-Jan Mon 04:58 AM	Mon 05:12 AM	15-Jan Sun 08:58 PM	Sun 09:12 PM
ISS_020TI_FIRNADCMPO02_CIRS	ISS_Phot_1_by_1	2006-014T23:41:27	-00T11:59	16-Jan Mon 04:58 AM	Mon 05:12 AM	15-Jan Sun 08:58 PM	Sun 09:12 PM
UVIS_020TI_FIRNADCMPO02_CIRS	UVIS_5032	2006-014T23:41:27	-00T11:59	16-Jan Mon 04:58 AM	Mon 05:12 AM	15-Jan Sun 08:58 PM	Sun 09:12 PM
INMS_020TI_T10INBD001_ISS	INMS_1498	2006-015T00:15:36	-00T11:25	16-Jan Mon 05:01 AM	Mon 05:16 AM	15-Jan Sun 09:01 PM	Sun 09:16 PM
CIRS_020TI_FIRNADCMPO03_ISS	CIRS_4000	2006-015T01:41:27	-00T09:59	16-Jan Mon 05:08 AM	Mon 05:26 AM	15-Jan Sun 09:08 PM	Sun 09:26 PM
ISS_020TI_MONITORNA001_PRIME	ISS_Phot_1_by_1	2006-015T01:41:27	-00T09:59	16-Jan Mon 05:08 AM	Mon 05:26 AM	15-Jan Sun 09:08 PM	Sun 09:26 PM
CIRS_020TI_MIRLBINT002_PRIME	CIRS_4000	2006-015T02:41:27	-00T08:59	16-Jan Mon 05:39 AM	Mon 06:01 AM	15-Jan Sun 09:39 PM	Sun 10:01 PM
CIRS_020TI_MIRLBINT002_SI	ISS_SUPPORT_IMAGING	2006-015T02:41:27	-00T08:59	16-Jan Mon 05:39 AM	Mon 06:01 AM	15-Jan Sun 09:39 PM	Sun 10:01 PM
ISS_020TI_MIRLBINT002_CIRS	ISS_Phot_1_by_1	2006-015T02:41:27	-00T08:59	16-Jan Mon 05:39 AM	Mon 06:01 AM	15-Jan Sun 09:39 PM	Sun 10:01 PM
UVIS_020TI_MIRLBINT002_CIRS	UVIS_5032	2006-015T02:41:27	-00T08:59	16-Jan Mon 05:39 AM	Mon 06:01 AM	15-Jan Sun 09:39 PM	Sun 10:01 PM
CIRS_020TI_FIRNADCMPO01_ISS	CIRS_4000	2006-015T06:41:27	-00T04:59	16-Jan Mon 05:58 AM	Mon 06:27 AM	15-Jan Sun 09:58 PM	Sun 10:27 PM
ISS_020TI_GLBMAPNLP001_PRIME	ISS_Phot_1_by_1	2006-015T06:41:27	-00T04:59	16-Jan Mon 05:58 AM	Mon 06:27 AM	15-Jan Sun 09:58 PM	Sun 10:27 PM
UVIS_020TI_GLBMAPNLP001_ISS	UVIS_5032	2006-015T06:41:27	-00T04:59	16-Jan Mon 05:58 AM	Mon 06:27 AM	15-Jan Sun 09:58 PM	Sun 10:27 PM
MAG_020TI_MAGTITAN001_PRIME	MAG_1976	2006-015T08:00:27	-00T03:40	16-Jan Mon 06:21 AM	Mon 06:54 AM	15-Jan Sun 10:21 PM	Sun 10:54 PM
ISS_020TI_HIGHRESNA001_VIMS	ISS_Phot_1_by_1	2006-015T09:41:27	-00T01:59	16-Jan Mon 06:51 AM	Mon 07:29 AM	15-Jan Sun 10:51 PM	Sun 11:29 PM
MIMI_020TI_T10INBND001_ISS	MIMI_8000	2006-015T09:41:27	-00T01:59	16-Jan Mon 06:51 AM	Mon 07:29 AM	15-Jan Sun 10:51 PM	Sun 11:29 PM
RPWS_020TI_TINTRMED001_PRIME	RPWS_30464	2006-015T09:41:27	-00T01:59	16-Jan Mon 06:51 AM	Mon 07:29 AM	15-Jan Sun 10:51 PM	Sun 11:29 PM
VIMS_020TI_HIGHRESNA001_PRIME	VIMS_18432	2006-015T09:41:27	-00T01:59	16-Jan Mon 06:51 AM	Mon 07:29 AM	15-Jan Sun 10:51 PM	Sun 11:29 PM
CAPS_020TI_T10INBND001_RIDER	CAPS_16000	2006-015T10:01:27	-00T01:39	16-Jan Mon 07:03 AM	Mon 07:45 AM	15-Jan Sun 11:03 PM	Sun 11:45 PM
CAPS_020TI_T10CLOSE001_RIDER	CAPS_16000	2006-015T10:41:27	-00T00:59	16-Jan Mon 07:28 AM	Mon 09:33 AM	15-Jan Sun 11:28 PM	Mon 01:33 AM
INMS_020TI_T10CLOSE001_UVIS	INMS_1498	2006-015T10:41:27	-00T00:59	16-Jan Mon 07:28 AM	Mon 09:33 AM	15-Jan Sun 11:28 PM	Mon 01:33 AM
MIMI_020TI_T10CLOSE001_UVIS	MIMI_8000	2006-015T10:41:27	-00T00:59	16-Jan Mon 07:28 AM	Mon 09:33 AM	15-Jan Sun 11:28 PM	Mon 01:33 AM
UVIS_020SU_USUNOCC001_PRIME	UVIS_32096	2006-015T11:01:27	-00T00:39	16-Jan Mon 07:42 AM	Mon 09:51 AM	15-Jan Sun 11:42 PM	Mon 01:51 AM
VIMS_020TI_SOLAROCC002_UVIS	VIMS_18432	2006-015T11:01:27	-00T00:39	16-Jan Mon 07:42 AM	Mon 09:51 AM	15-Jan Sun 11:42 PM	Mon 01:51 AM
CAPS_020TI_T10OUTBND001_RIDER	CAPS_16000	2006-015T12:41:27	00T01:00	16-Jan Mon 09:23 AM	Mon 10:39 AM	16-Jan Mon 01:23 AM	Mon 02:39 AM
CIRS_020TI_FIRLBINT003_PRIME	CIRS_4000	2006-015T12:41:27	00T01:00	16-Jan Mon 09:23 AM	Mon 10:39 AM	16-Jan Mon 01:23 AM	Mon 02:39 AM
CIRS_020TI_FIRLBINT003_SI	ISS_SUPPORT_IMAGING	2006-015T12:41:27	00T01:00	16-Jan Mon 09:23 AM	Mon 10:39 AM	16-Jan Mon 01:23 AM	Mon 02:39 AM
INMS_020TI_T10OUTBD001_CIRS	INMS_1498	2006-015T12:41:27	00T01:00	16-Jan Mon 09:23 AM	Mon 10:39 AM	16-Jan Mon 01:23 AM	Mon 02:39 AM
ISS_020TI_FIRLBINT003_CIRS	ISS_Phot_1_by_1	2006-015T12:41:27	00T01:00	16-Jan Mon 09:23 AM	Mon 10:39 AM	16-Jan Mon 01:23 AM	Mon 02:39 AM
MIMI_020TI_T10OUTBND001_CIRS	MIMI_8000	2006-015T12:41:27	00T01:00	16-Jan Mon 09:23 AM	Mon 10:39 AM	16-Jan Mon 01:23 AM	Mon 02:39 AM
CAPS_020SA_SURVEY005_RIDER	CAPS_16000	2006-015T13:21:27	00T01:40	16-Jan Mon 09:33 AM	Mon 11:01 AM	16-Jan Mon 01:33 AM	Mon 02:54 AM
CIRS_020TI_FIRNADCMPO08_VIMS	CIRS_4000	2006-015T13:41:27	00T02:00	16-Jan Mon 09:37 AM	Mon 11:01 AM	16-Jan Mon 01:37 AM	Mon 03:01 AM
ISS_020TI_AURORAE001_VIMS	ISS_Phot_1_by_1	2006-015T13:41:27	00T02:00	16-Jan Mon 09:37 AM	Mon 11:01 AM	16-Jan Mon 01:37 AM	Mon 03:01 AM
MIMI_020CO_SURVEY003_RIDER	MIMI_8000	2006-015T13:41:27	00T02:00	16-Jan Mon 09:37 AM	Mon 11:01 AM	16-Jan Mon 01:37 AM	Mon 03:01 AM
RPWS_020SA_OUTSURVEY004_PRIME	RPWS_30464	2006-015T13:41:27	00T02:00	16-Jan Mon 09:37 AM	Mon 11:01 AM	16-Jan Mon 01:37 AM	Mon 03:01 AM
VIMS_020TI_AURORAE001_PRIME	VIMS_18432	2006-015T13:41:27	00T02:00	16-Jan Mon 09:37 AM	Mon 11:01 AM	16-Jan Mon 01:37 AM	Mon 03:01 AM
CIRS_020TI_FIRNADCMPO04_UVIS	CIRS_4000	2006-015T14:41:27	00T03:00	16-Jan Mon 09:46 AM	Mon 11:14 AM	16-Jan Mon 01:46 AM	Mon 03:14 AM
ISS_020TI_EUVFUV001_UVIS	ISS_Phot_1_by_1	2006-015T14:41:27	00T03:00	16-Jan Mon 09:46 AM	Mon 11:14 AM	16-Jan Mon 01:46 AM	Mon 03:14 AM
UVIS_020TI_EUVFUV001_PRIME	UVIS_5032	2006-015T14:41:27	00T03:00	16-Jan Mon 09:46 AM	Mon 11:14 AM	16-Jan Mon 01:46 AM	Mon 03:14 AM
VIMS_020TI_EUV001_UVIS	VIMS_18432	2006-015T14:41:27	00T03:00	16-Jan Mon 09:46 AM	Mon 11:14 AM	16-Jan Mon 01:46 AM	Mon 03:14 AM
MAG_020OT_SURVEY014_RIDER	MAG_1976	2006-015T15:22:27	00T03:41	16-Jan Mon 09:50 AM	Mon 11:20 AM	16-Jan Mon 01:50 AM	Mon 03:20 AM
CIRS_020TI_FIRNADCMPO05_ISS	CIRS_4000	2006-015T19:41:27	00T08:00	16-Jan Mon 10:15 AM	Mon 11:55 AM	16-Jan Mon 02:15 AM	Mon 03:55 AM
ISS_020TI_NIGHTNAC002_PRIME	ISS_Phot_1_by_1	2006-015T19:41:27	00T08:00	16-Jan Mon 10:15 AM	Mon 11:55 AM	16-Jan Mon 02:15 AM	Mon 03:55 AM